UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/026,019	12/20/2001	Ralph H. Johnson	V637-02674 US	6105

128 7590 12/09/2002

HONEYWELL INTERNATIONAL INC.
101 COLUMBIA ROAD
P O BOX 2245
MORRISTOWN, NJ 07962-2245

EXAMINER	
NGUYEN, TUAN M	
ART UNIT	**PAPER NUMBER**
2828	

DATE MAILED: 12/09/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/026,019	JOHNSON, RALPH H.
	Examiner	Art Unit
	Tuan M Nguyen	2828

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

PAUL IP
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Double Patenting

1. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

2. A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

3. Claims 1-33 are provisionally rejected under the judicially created doctrine of double patenting over claims 1-34 of copending Application No. 10/026016. This is a provisional double patenting rejection since the conflicting claims have not yet been patented.

The subject matter claimed in the instant application is fully disclosed in the referenced copending application and would be covered by any patent granted on that copending application since the referenced copending application and the instant application are claiming common subject matter, as follows:

4. Claims 1, 21, 24 and 28-33 of Application No. 10/026019 recite a VCSEL comprising at least one quantum well having a depth of at least 40 meV and comprised of InGaAsN. Further claims 21, 28, 31 and 33 recite an AlGaAs barrier layers and claims 24, 28, 29, 31 and 32 recite AlGaAs confinement layers. Furthermore claim 29 recites InGaAsN barrier layers. The limitation in the claims of this application is basically the same as the limitations in the claims 1, 25 and 33 of the copending application 10/026016.

Claims 1, 25 and 33 of copending application number 10/026016 recites a VCSEL comprising at least one quantum well having a depth of at least 40 meV and comprised of InGaAsSbN. Further claim 25 and 33 recites AlGaAs confinement layers. Furthermore claim 33 recites AlGaAs barrier layers. The claims recite alternative substitution elements such as Al, In, N, Sb, with the basic material GaAs. Therefore claims 1-33 and claims 1-34 of copending Application No. 10/026016 are considered as the "same invention". Furthermore, the substituted elements are disclosed in each application specification and title of the invention. Thus, the claims are not patentable distinct from each other.

Furthermore, there is no apparent reason why applicant would be prevented from presenting claims corresponding to those of the instant application in the other copending application. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-33 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding to claims 1, 21, 24 and 28-33, the claims recite a VCSEL comprising at least one quantum well having a depth of at least 40 meV and comprised of InGaAsSbN, AlGaAs barrier layers; and AlGaAs confinement layers. The claims fail to provide any means, any

structure and any structural relationship in order to support the VCSEL in the claims, which render the claims confusing, vague and indefinite.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 1-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eglash et al (5,251,225) in view of Jewell et al (6,359,920).

With respect to claim 1, Eglash et al disclose a quantum well diode laser comprising an active region (18) includes barrier layers (22) sandwiching quantum well layers (20) and confinement layers (14, 16) sandwiching barrier layers, note col. 2 line 54 to col. 5 line 67, see fig. 1. However Eglash does not discloses a quantum well having a depth of at least 40 meV and comprised of InGaAsN. Whereas Jewell et al discloses quantum well having at least 40 meV and comprises of InGaAsN, note col. 6 line 30 to col. 28 line 54, see fig. 2b. For the advantageous of

quantum well diode laser , it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Eglash with the quantum well having a depth at least 40 meV and comprised of InGaAsN as taught or suggested by Jewell et al.

With respect to claim 2, Jewel et al discloses the barrier layer are comprised of GaAsN, note col. 31 line 6 to col. col. 37 line 19 , see fig. 11.

With respect to claim 3, Jewel et al discloses the confinement layers are further comprised of AlGaAs, note col. 35, see figs, 9a-9b.

With respect to claim 4, Jewel et al discloses the barrier layers are AlGaAs, note col. 29.

With respect to claim 5, Jewell discloses the quantum well comprises N. However the percentage of N less than 1%. Since it has been held that discovering an optimum value of a result effect variable involves only routine skill in the art. *In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).*

With respect to claims 6-7, Jewel et al discloses the quantum well is up and including 50 of thickness, not3 cols. 25-26.

With respect to claim 8, Jewel et al discloses the barrier layer are comprised of GaAsN, note col. 31 line 6 to col. col. 37 line 19 , see fig. 11.

With respect to claim 9, Jewel et al discloses the confinement layers are further comprised of AlGaAs, note col. 35, see figs, 9a-9b.

With respect to claim 10, Jewel et al discloses the barrier layers are AlGaAs, note col. 29.

With respect to claims 11 and 13, Jewel et al discloses the confinement layers are further comprised of AlGaAs, note col. 35, see figs, 9a-9b.

With respect to claim 12, Jewel et al discloses the barrier layers are AlGaAs, note col. 29.

With respect to claim 14, Jewel et al discloses the quantum well further comprised of Sb, note col. 31, see fig. 11.

With respect to claim 15, Jewel et al discloses the barrier layers comprised of GaAsN, note cols. 31-32.

With respect to claim 16, Jewel et al discloses the confinement layers are further comprised of AlGaAs, note col. 35, see figs, 9a-9b.

With respect to claims 17-20, Jewel et al discloses the barrier layers are further comprised of AlGaAs, note cols. 35-36, see figs, 9a-10b.

With respect to claim 21, Jewel et al discloses the quantum well having a depth at least 40 meV and comprised of InGaAsN; AlGaAs barrier layers sandwiching the quantum well and confinement layers sandwiching the barriers layers, col. 34 line 54 to col. 37 line 17, see figs. 2 and 8-10b.

With respect to claim 22, Jewel et al discloses the confinement layers are further comprised of AlGaAs, note col. 35, see figs, 9a-9b.

With respect to claim 23, Jewell et al discloses the quantum well having 50 in thickness, note cols. 25-26.

With respect to claim 24, Jewel et al discloses the quantum well having a depth at least 40 meV and comprised of InGaAsN; barrier layers sandwiching the quantum well and AlGaAs confinement layers sandwiching the barriers layers, col. 34 line 54 to col. 37 line 17, see figs. 2 and 8-10b.

With respect to claim 25, Jewel et al discloses the barrier layers are comprised of AlGaAs, note cols. 35-36, see figs, 9a-10b.

With respect to claim 26, Jewel et al discloses the barrier layers are comprised of InGaAsN, note col. 26 line 60 to col. 27 line 10.

With respect to claim 27, Jewell et al discloses the quantum well having 50 in thickness, note cols. 25-26, see fig. 3.

With respect to claims 28 and 31, Jewel et al discloses the quantum well having a depth at least 40 meV and comprised of InGaAsN; AlGaAs barrier layers sandwiching the quantum well and AlGaAs confinement layers sandwiching the barriers layers, col. 34 line 54 to col. 37 line 17, see figs. 2 and 8-10b.

With respect to claim 29, Jewel et al discloses the quantum well having a depth at least 40 meV and comprised of InGaAsN; InGaAsN barrier layers sandwiching the quantum well and AlGaAs confinement layers sandwiching the barriers layers, col. 26 line 61 to col. 37 line 17, see figs. 2 and 8-10b.

With respect to claim 30, Jewel et al discloses the quantum well having a depth at least 40 meV and comprised of InGaAsN; GaAsN barrier layers sandwiching the quantum well and GaAsN confinement layers sandwiching the barriers layers, col. 6 line 49 to col. 37 line 17, see figs. 2 and 8-10b.

With respect to claim 32, Jewel et al discloses the quantum well comprised of InGaAsN; GaAsN barrier layers sandwiching the quantum well and AlGaAs confinement layers sandwiching the barriers layers, col. 8 line 17 to col. 37 line 17, see figs. 8-10b.

With respect to claim 33, Jewel et al discloses the quantum well comprised of InGaAsN; AlGaAs barrier layers sandwiching the quantum well and GaAsN confinement layers sandwiching the barriers layers, col. 35 line 7 to col. 37 line 17, see figs. 8-10b.

Citation Of The Pertinent References

9. The prior art made of record and not relied upon us considered pertinent to applicant's disclose.

The patent to Sasanuma et al (US patent 6,252,894) discloses semiconductor laser using gallium nitride series compound semiconductor .

The patent to Van de Walle et al (US patent 5,383,211) discloses TM-polarized laser emitter using III-V alloy with nitrogen.

Communication Information

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan M Nguyen whose telephone number is (703) 306-0247. The examiner can normally be reached on 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 306-5511 for regular communications and (703) 306-5511 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-3329.

Paul Ip
SPE
Art unit 2828

TMN
December 3, 2002